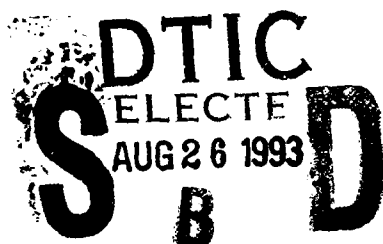April 1993
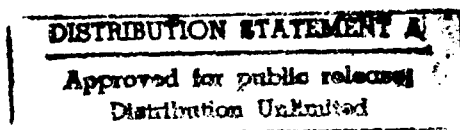
Doing Business with DoD Using Electronic Data Interchange

An Information Package for Defense Freight Shipping Activities

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CONTENTS

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INTRODUCTION

As an employee of a Department of Defense (DoD) freight shipping activity, you are most likely aware that DoD is replacing the freight Government bill of lading (GBL) and other routine transportation documents with electronic equivalents through the use of electronic data interchange (EDI) techniques. That initiative entails installing EDI capability at DoD's 3 payment centers, 161 largest transportation offices, and the Military Traffic Management Command (MTMC). It is also forcing changes in the business procedures currently used by Defense shippers.

PURPOSE

The transition from a traditional paper environment to one that is virtually paperless is a quantum leap. Although the objective of this transition is simple and clear, the route leading to it may not be, particularly for shippers with little or no EDI background.

This information package is designed to assist you in making that transition. It provides guidance on how to initiate and conduct EDI freight shipment business with both commercial carriers and other DoD activities.

ORGANIZATION

This document is organized for easy use and contains three separate sections. Section 1 addresses the nature of EDI, how it applies to DoD's transportation program, and why you should use EDI to conduct your freight shipment business. Section 2 introduces and explains American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 EDI standards, related transaction sets, and DoD's EDI conventions for implementing them. It also describes how you formalize an EDI relationship with your trading partners and identifies the detailed functional and technical operating instructions published by DoD. Section 3 provides guidance on implementing EDI, particularly the hardware, software, and communications requirements.

Supporting the three sections are addenda that provide related functional and technical information. They include a glossary of terms and abbreviations,

references on EDI, and an appendix listing points of contact for resolving functional and technical issues.

WHAT HAS ALREADY BEEN ACCOMPLISHED?

It is important to bear in mind that DoD and the freight carrier industry already have laid the foundation for a successful EDI relationship. Jointly, they have resolved a number of data and regulatory problems. In addition, DoD is modifying the *Defense Traffic Management Regulation* (DTMR) to accommodate an EDI operating environment. Until those modifications are completed, the document entitled *Electronic Operating Instructions for Defense Shipping Activities*[1] details DoD's policies and procedures for using EDI to exchange transportation documents with the commercial carrier industry and MTMC. DoD has also designed, coordinated, tested, and documented an EDI operating concept.

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[1]LMI Report PL205RD2, *Electronic Operating Instructions for Defense Shipping Activities*, William R. Ledder, to be published.

SECTION 1

AN EDI OVERVIEW

In this section, we define and describe EDI, discuss DoD's operating concept for the electronic exchange of GBL and other transportation information, and identify a variety of operating improvements and benefits that may derive from implementing EDI.

WHAT IS EDI?

Electronic data interchange is the computer-to-computer exchange of routine business information in a standard format. When applied to DoD's transportation program, EDI electronically links the commercial carriers, Defense shipping activities, MTMC, and DoD finance centers, to permit the exchange of business data such as tender submissions, shipment information, and invoices.

Interest in the electronic transmission of business information gained momentum as the use of computers in commercial business applications became more prevalent and techniques for computer-to-computer communications were developed. That interest was triggered by the enormous amount of paper required to conduct business and the numerous disparate formats in use. In many of the early applications, however, each pair of trading partners (i.e., the activities exchanging information) used unique (i.e., proprietary) electronic formats and procedures.

Although the computer-to-computer exchange of information is not new, the concept of standard data formats is relatively recent. An effort to cooperatively develop industry-wide standards for various business functions began in earnest in the 1960s. Most of those early standards pertained to single industries. However, some, such as bills of lading and freight invoices, had application in many industries. Therefore, the concept of national standards applying across a number of industries became increasingly popular.

Development of the first standards for EDI began in the late 1970s. In 1979, ANSI, which was founded in 1918 to coordinate the development of U.S. national standards, chartered a new committee known today as the ASC X12, Electronic Data

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Interchange. That committee's goal was, and still is, to develop uniform standards for the electronic interchange of business tra actions.[2]

The ASC X12 published its first five national EDI standards in 1983. By 1989, it had published 32 standards; and by 1990, it had approved development projects for nearly 100 additional standards, including most of the transportation industry's standards. Section 2, "Learning to Speak EDI," describes the ASC X12 EDI standards that may have application to you, along with their implementation conventions.

HOW EDI APPLIES TO DEFENSE TRANSPORTATION

In order to explain how you exchange shipment information electronically with your trading partners, you need to first understand two automated systems that DoD has developed for processing transportation documents. In addition to the many transportation systems developed by the Military Services and Defense Logistics Agency for generating shipment information, MTMC operates the CONUS Freight Management (CFM) system, which serves as DoD's rating and ranking, shipment-in-process, and transportation management system for freight shipments. In addition, the Defense Finance and Accounting Service – Indianapolis Center (DFAS-IN) has developed the Defense Transportation Payment System (DTRS), which automates its invoice processing and payment functions.

How the CFM System and DTRS Support EDI Operations

Together, the CFM system and DTRS comprise the information baseline for DoD to establish EDI relationships with commercial freight carriers and streamline its transportation document processing procedures. The CFM system captures the information required to initiate, monitor, and manage DoD's CONUS freight shipment program. The information maintained in the CFM system data base comes from the *U.S. Government Bill of Lading*, Standard Form 1103, and the *Department of Defense (DoD) Standard Tender of Freight Services*, MT Form 364-R.

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[2]ASC X12 standards comprise data organized as transaction sets (the equivalent of paper business documents), data segments, and data elements. In addition, if more than one of a particular transaction set is transmitted (for example, three GBLs using Transaction Set 858, *Shipment Information*), they comprise a component referred to as a functional group.

Carriers can use data provided by a Defense shipping activity to prepare their invoices and electronically transmit them to a DoD finance center. If DFAS-IN is the finance center, then DTRS will process the invoice and prepare it for payment.[3]

Defense Freight Transportation EDI Operating Concept

The DoD's concept for electronically linking Defense shipping activities, freight carriers, MTMC, and DoD finance centers is depicted in Figure 1. The concept calls for Defense shipping activities to transmit shipment information (a GBL) to the CFM system as shown in data flow 1. The CFM system edits the data and transmits an administrative message (data flow 2) that indicates whether the CFM system accepts or rejects the shipping activity's shipment information.
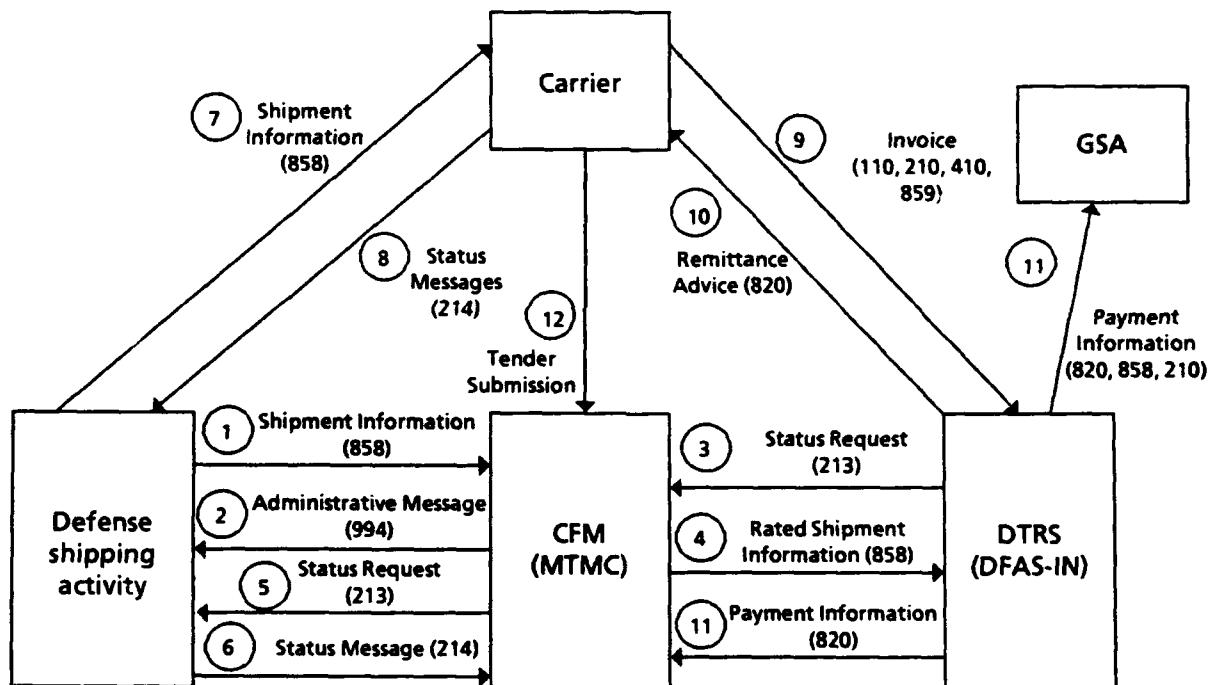
Note: GSA = General Services Administration.

FIG. 1. FREIGHT EDI OPERATING CONCEPT

When DFAS-IN receives an invoice from a commercial carrier, DTRS sends an electronic (status) request for the corresponding shipment information record (data flow 3). The CFM system rates the shipment and transmits the shipment

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[3]The U.S. Marine Corps uses a different payment system, the Transportation Management System. Carriers may continue to transmit invoices electronically to the Marine Corps payment center until its operations are consolidated under DFAS-IN.

information record, now updated with cost data, to DTRS (data flow 4). If the CFM system cannot find the requested shipment information record, it electronically requests a copy from the Defense shipping activity that initiated the shipment (data flow 5). The activity then sends the shipment information record to the CFM system (data flow 1). If the shipment information cannot be located, the shipping activity sends a status message to the CFM system (data flow 6).

Defense shipping activities may also electronically send a copy of the shipment information to the commercial carrier (data flow 7). Finally, as shown in data flow 8, a Defense shipping activity may electronically receive shipment status messages from the commercial carrier.

The carriers also transmit their invoices directly to DTRS (data flow 9), which, in turn, reconciles them with the appropriate shipment information record or paper GBL and pays the carrier. Although the payment process is currently manual, DFAS-IN plans to implement electronic funds transfer, which will enable it to replace the paper check currently sent to the carrier's financial institution. Following payment, DFAS-IN plans to transmit remittance advice and payment information electronically to the commercial carrier, CFM system, and General Services Administration (GSA). Those transmissions are shown as data flows 10 and 11. Finally, carriers can transmit rate tenders for transportation services to the CFM system (data flow 12).

The *Electronic Operating Instructions for Defense Shipping Activities* provides detailed guidance for all Defense shipping activity data flows as well as procedures for those shipping activities that are not EDI capable.

WHY SHOULD I DO BUSINESS ELECTRONICALLY?

The telephone, personal computer, and facsimile machine have all become indispensable tools for conducting business in today's global environment. EDI has already established itself as another business tool. Numerous companies have made a commitment to exchange routine business information related to rate solicitations, purchase orders, invoices, shipment information, shipment status, customs declarations, quality control, and various other functions using EDI. Their commitment is based on documented improvements in customer service and operating efficiency.

DoD's Commitment to EDI

Like many major corporations, DoD is committed to increasing its use of EDI in its business operations. The use of EDI received a major boost as a result of the Deputy Secretary of Defense's May 1988 policy memorandum, which directed DoD Components to make "... maximum use of electronic data interchange for the paperless processing of all business-related transactions...." The Assistant Secretary of Defense (Production and Logistics) was charged with responsibility for establishing guidelines for "... acceptance of EDI as the normal way of doing business with DoD by the early 1990's."

In addition, Title 41 of the Code of Federal Regulations (CFR) was changed in April 1989 to permit the use of EDI to document and pay transportation bills. Following that change, Defense Management Report Decision 941, *Implementation of Electronic Data Interchange in DoD*, November 1990, prescribes that EDI transmissions are to constitute 92 percent of all DoD business transactions by the fourth quarter of Fiscal Year 1996. These actions — issuing a policy memorandum, changing the CFR, and establishing an implementation target — clearly demonstrate DoD's commitment to doing business electronically.

Operating Improvements and Benefits from Using EDI

Business relationships that rely less on paper and more on the electronic transmission of business information offer DoD shippers, and the commercial carriers supporting them, a variety of operating improvements and benefits. They include

- *Reduced paper and associated handling and storage costs.* Reducing the number of paper-based transactions enables EDI trading partners to lower their costs of supporting and handling paper-based transactions. Supporting (material) costs include those incurred for paper, envelopes, and mailing; courier and telephone services; and storage space. Handling costs are those associated with data entry as well as the manual sorting, filing, and mailing of paper documents.

- *Reduced administrative costs.* Electronic records can provide effective audit trails and enhance records retention, primarily because a computer image is easily transferable to microfilm, tape, or disk. The need for paper documents to mirror the electronic data is eliminated in most applications. In addition, electronic records require much less storage space than their paper counterparts and are more easily retrieved.

- *Increased accuracy and timeliness of data flow.* EDI significantly enhances information accuracy and timeliness. Both the ᴊced data entry requirements and the direct exchange of information ᴊween computer systems limit opportunities for human errors.

In value-added terms, companies using EDI routinely report between $2 and $10 in direct cost savings for every document transmitted electronically. Indirect cost savings, attributable to EDI simplifying and improving business procedures, are reported ranging from $3 to $5 for every $1 in direct cost savings.

These inducements apply to every organization conducting business using EDI. There are, however, some particularly noteworthy operating improvements and benefits that result from Defense transportation's EDI program. We list those improvements and associated benefits in Table 1.

TABLE 1

DEFENSE TRANSPORTATION EDI OPERATING IMPROVEMENTS AND RELATED BENEFITS

Process	Operating improvement	Related benefit
Rate filing	More immediate feedback on errors	Reduced chance of final rate rejection
	Shortened rate-filing cycle time	Increased carrier ability to respond to market conditions, resulting in more accurate rates
Shipment information	More timely shipment information	Improved use of manpower and equipment
	Less data entry	Reduced labor costs and fewer errors
	More accurate invoices	Fewer invoice rejections
Invoicing	Less paper	Improved document control and reduced labor costs for paper and mail handling
	More timely payment to carriers	Improved cash flow
Prepayment audit	Fewer carrier overpayments	Improved use of transportation funds

SECTION 2

LEARNING TO SPEAK EDI

As inhabitants of a complex world, we have become adept at developing words, terms, and phrases unique to particular specialties. EDI is one such specialty and, not surprisingly, an EDI lexicon has evolved. This section explains the most significant words, terms, and phrases with which you need to be familiar in order to conduct business electronically. We also define many of the same words, terms, and phrases in the Glossary, along with additional words and terms that apply to EDI.

BACKGROUND

Despite their speed, efficiency, and accuracy, computers cannot recognize similar information in varying formats; information must be formatted so that it corresponds to what the computer has been told in advance to expect — in other words, to how it has been programmed.

In view of that limitation, EDI is designed to permit the computer receiving information to accept and interpret it automatically. In order to accommodate that acceptance and interpretation, the information is formatted in a standard way for transmission, rather than being retained in textual form. The key considerations in this process are labeled "standards" and "implementation conventions."

In addition, the term "trading partners" refers to the parties engaged in electronically exchanging business information. In the Defense EDI freight transportation program, the trading partners are the commercial carriers, Defense shipping activities, MTMC, DoD finance centers, and GSA.

Finally, in recognition of the need to satisfy the unique requirements of individual DoD trading partners, "operating instructions" provide detailed functional and technical guidance.

· In the balance of this section, we discuss each of these terms in detail.

UNDERSTANDING STANDARDS, TRANSACTION SETS, AND IMPLEMENTATION CONVENTIONS

We begin our discussion of EDI terminology by explaining ASC X12 EDI standards, transaction sets, and implementation conventions and describing those that apply to Defense transportation.

ASC X12 EDI Standards and Related Transaction Sets

The concept of EDI standards was introduced in Section 1. Although there are numerous standards (for example, private, proprietary, industry related), Defense transportation uses four ASC X12 standards and one Transportation Data Coordinating Committee (TDCC) standard in its EDI applications because of their wide acceptance throughout the public and private sectors.

Transaction sets permit transportation information traditionally found in paper documents to be translated into a computer-readable format for electronic transmission to a trading partner's computer for processing. These transaction sets form the basis for your EDI relationship within DoD and with commercial carriers. They are

- Transaction Set 213, *Motor Carrier Shipment Status Inquiry*
- Transaction Set 214, *Motor Carrier Shipment Status Message*
- Transaction Set 858, *Shipment Information*
- Transaction Set 994, *Administrative Message*[4]
- Transaction Set 997, *Functional Acknowledgment.*

The ASC X12 EDI standards containing those and numerous other transaction sets are maintained, and periodically updated, by the Data Interchange Standards Association (DISA). You may obtain copies of the ASC X12 EDI standards by contacting the DISA point of contact listed in the appendix.

Specific guidance regarding the version/release of a particular standard being used by DoD at any given time is available in the operating instructions published by

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[4]TDCC Transaction Set 994 is a free-form electronic message format that uses EDI syntax, and although it is not an official ASC X12 transaction set, it is supported by most EDI translation software products.

MTMC and the DoD finance centers. Those instructions are available by contacting the appropriate point of contact identified in the appendix.

To aid you in developing an EDI capability, we now describe each of the transaction sets applicable to Defense transportation's program and the manner in which DoD uses them to exchange shipment information electronically.

Transaction Set 213, Motor Carrier Shipment Status Inquiry

The DFAS-IN uses Transaction Set 213 to request shipment information from the CFM system after it receives an invoice from a commercial carrier. Also, if the CFM system is not able to locate the shipment in its data base, MTMC will send a Transaction Set 213 to the originating shipping activity requesting that it retransmit the specified shipment information (GBL) to the CFM system.

Transaction Set 214, Motor Carrier Shipment Status Message

Commercial carriers use Transaction Set 214 to transmit shipment status information to Defense shipping activities and the CFM system. In addition, when the CFM system requests a specific shipment information record from the originating shipper via a Transaction Set 213, the shipper will send a Transaction Set 214 to the CFM system if the shipment did not occur or if the record cannot be located.

Transaction Set 858, Shipment Information

Defense shipping activities use Transaction Set 858 to transmit detailed shipment information — such as accessorial services and weight information — on a particular shipment to a carrier and to MTMC. The data transmitted using this transaction set are found on the *U.S. Government Bill of Lading*, Standard Form 1103. MTMC has published separate operating instructions on how the CFM system will receive and process electronic GBLs. Those instructions are available from the appropriate point of contact identified in the appendix.

Transaction Set 994, Administrative Message

The MTMC uses Transaction Set 994 to transmit the results of the CFM system application data edits performed on Transaction Sets 858 sent by Defense shipping activities.

Transaction Set 997, Functional Acknowledgment

ɩransaction Set Ϛ indicates whether an EDI transmission contains valid ASC X12 transactions. In this application, validity refers only to the transmitted transaction set's compliance with standard syntax requirements, not to the semantic meaning or accuracy of the transmitted information. Transaction Set 997 is automatically generated by a trading partner's EDI translation software, which also controls the level of syntax compliance whenever any other transaction set is received.

The DoD uses this transaction set in two ways. It is used to acknowledge that the transmission of an EDI transaction set is valid and conforms to syntax requirements. It also indicates to the sender of an EDI transmission the number of transaction sets that the addressee (i.e., the provider of Transaction Set 997) received under a particular transmission.[5] However, the trading partner receiving a functional acknowledgment needs to program its application system to reconcile, drawing upon the example cited in the footnote on this page, the information that it received three transaction sets and transmitted five. Some EDI translation software packages automatically perform that reconciliation and print the results.

Transaction Set 997 offers the user a choice regarding the level (that is, data segment or data element) to which syntax compliance is detected and reported in transmissions. The syntax compliance confirmation must be indicated at least to the data-segment level in acknowledgments transmitted by carriers to DoD activities and to the data-element level in acknowledgments transmitted by DoD activities to carriers.

It is important to note that the functional acknowledgments furnished in response to shipment rate information and invoices indicate syntax compliance only; they neither infer acceptance of rates by MTMC nor correctness or validity of invoices by DoD finance centers.

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[5]To clarify the audit capability of this transaction set, consider the following example. Initiating the provision of transportation services to DoD, Defense Shipper ABC electronically transmits five GBLs, using Transaction Set 858, to XYZ Van Lines. That carrier, using Transaction Set 997, acknowledges receipt of three GBLs to Shipper ABC and indicates that each conformed with standard syntax requirements. Upon receipt of the functional acknowledgment, Shipper ABC knows that XYZ Van Lines did not receive two of its five GBLs and that the three GBLs that were received were valid transmissions.

The DoD requires carriers to send functional acknowledgments upon receipt of freight information employing Transaction Set 858. Two general rules apply when using functional acknowledgments:

- *Rule No. 1.* The timeframes during which the receiving EDI trading partner must provide a functional acknowledgment are prescribed in the operating instructions published by various DoD trading partners; those instructions may be obtained through the appropriate point of contact listed in the appendix.

- *Rule No. 2.* Upon receipt of notification of syntax errors, the trading partner that transmitted the invalid transaction set is responsible for correcting the errors and retransmitting the information.

DoD EDI Conventions

The preceding section emphasizes that standards are the ASC X12-approved technical documentation for the electronic transmission of business transactions. Standards are, by nature, generic and usable by a wide variety of organizations and suitable for an equally wide variety of applications. Although that flexibility makes them difficult to apply to specific or unique circumstances, it enables each user to tailor the standards to meet unique data transmission requirements.

Such tailoring of EDI standards is accomplished through the use of "conventions," which detail the specific or unique practices and/or interpretations of ASC X12 EDI standards as agreed to by two or more trading partners. Conventions prescribe the location and values of information within a transaction set, thereby enabling trading partners to successfully exchange and interpret the information. Conventions must at all times be in conformance with the standards, although they prescribe a unique application. The particular aspects of DoD's transportation program require conventions for four of the transaction sets employed. DoD already has published its conventions for using Transaction Sets 213, 214, 858, and 994; you may obtain copies from the MTMC point of contact identified in the appendix. DoD has not developed a convention for Transaction Set 997 because that industry-wide standard meets its usage requirements.

TRADING PARTNERS

The participa...ts in an electronic relationship are called trading partners. In Defense transportation, the trading partners are commercial freight carriers, Defense shipping activities, MTMC, and DoD finance centers.

It is essential that trading partners formalize their EDI relationship. The terms, conditions, arrangements, and business details pertaining to the electronic exchange of data must be documented and agreed upon by all trading partners for a variety of reasons, to include:

- Trading partners need to concur that EDI-based obligations are legally binding on all parties.

- Trading partners need to formally assert that they will not challenge the admissibility of information because it is in electronic format; they may, however, challenge the content or accuracy of data contained in a transmission, just as information in paper format may be challenged.

- Trading partners need to recognize that electronic records are admissible as evidence in court proceedings because they generally are considered to meet the legal requirements of paper documents.

In order to formalize Defense transportation's EDI relationship with carriers, MTMC is amending the DTMR to accommodate operations in an EDI environment. Both MTMC and the DoD finance centers have developed EDI operating instructions for shipping activities and carriers that reference the required changes to the DTMR.

In order for a carrier to exchange information electronically with a DoD shipping activity, it must complete an EDI Trading Partner Agreement (TPA) for each transaction set selected (e.g., 214 and 858). In addition, the carrier must complete a TPA addendum that provides administrative information for its DoD trading partner. Each TPA, upon being signed and dated by an authorized carrier official, must be returned to Headquarters, MTMC, Office of the Deputy Chief of Staff for Information Management (MTIM-CF). MTMC will then send a copy of every signed TPA addendum to each shipping activity identified by the carrier. Upon receipt of the signed TPA addendum(s), the shipping activity knows that the carrier is a valid EDI trading partner and may commence EDI operations with that carrier.

OPERATING INSTRUCTIONS

Although the DoD conventions and this information package provide a considerable amount of detail on how to conduct Defense transportation business in an EDI environment, each DoD trading partner acknowledges that it has a variety of unique requirements to be met and specific procedures to be followed. Those requirements and procedures are addressed in detailed functional and technical operating instructions that are published by each DoD trading partner and are distributed to carriers.

The operating instructions include those previously mentioned in conjunction with the description of Transaction Set 858. In addition, MTMC will distribute detailed operating instructions on how shippers should transmit shipment information using EDI, while each DoD finance center will publish and distribute instructions pertaining to its electronic billing procedures.

If you have any functional questions related to the operating instructions, please direct them to the appropriate point of contact identified in the appendix. That is, contact a DoD finance center point of contact for billing instructions and the MTMC point of contact regarding rate filing and shipment information instructions. Any EDI technical questions, to include those related to shipment information (Transaction Set 858), should also be addressed to the MTMC point of contact.

SECTION 3

CONDUCTING BUSINESS ELECTRONICALLY

Now that you are familiar with the background of EDI, DoD's electronic operating concept for freight, and the terms common to EDI operations, we address the steps necessary for you to initiate an EDI relationship.

HOW DO I GET STARTED?

Many shipping activities have discovered that their financial and technical concerns about entering into an EDI relationship, regardless of whether their trading partner was a commercial carrier or DoD activity, were unfounded. In fact, they found EDI relatively inexpensive and easy to initiate and operate.

The set-up, start-up, and operation of a basic EDI relationship can be accomplished with only a few ingredients and a minimum application of resources. Although many "bells and whistles" are available, the core ingredients for any EDI capability are hardware, software, and communications links.

Hardware

A powerful hardware platform is not required to begin exchanging EDI-formatted information. A microcomputer with an IBM-compatible 386 microprocessor is fully capable of meeting most shippers' needs, particularly when it is used as a "front-end" to your host computer.

Software

The computer software is a critical aspect of establishing an effective EDI relationship. In order to send and receive EDI data effectively, you will need:

- *EDI translation software.* The principal purpose of EDI translation software is to convert data extracted from your application data base to a standard EDI format in order to permit its exchange with your trading partners. Conversely, translation software also converts EDI-formatted data received from your trading partners to a file format recognized by your application system. Ultimately, those data are processed and written to your data base. Most translation software also includes a feature called a transaction set

mapping utility ِ..at gives users the flexibility to design their own flat-file format.[6]

- *Application system interface software.* Application system interface software has a vital role in both outgoing (data extracted from your application system for transmission via EDI) and incoming (EDI-formatted data entering your application program) data flows. During the outgoing flow, it extracts data from your application system (in-house automated data processing system) and places it into a flat file for subsequent translation into EDI-formatted data prior to transmission. When the data flow is reversed (to incoming), the application system interface software extracts the data from a flat file and prepares it for acceptance by your application program. In short, application system interface software is used to read or write flat files of information that are used to pass information between a trading partner's application system and EDI translation software.

- *Communications software.* Communications software connects you with a third-party EDI value-added network (VAN), which is needed to exchange EDI data with your trading partners. Communications software typically operates the modem, dials the EDI VAN, and connects to the EDI VAN's host computer. The software is generic and is frequently provided by the EDI translation software vendor; it can also be purchased from commercial software vendors. Many minicomputers and mainframes come equipped with communications software.

Communications Links

In order to exchange EDI information with the commercial carrier industry, Defense shippers must use the Sprint EDI VAN approved by Defense transportation. Instructions for obtaining those services are provided in *Ordering EDI Value-Added Network Services from Sprint.*[7] Activities may also use that VAN to exchange information with other DoD activities, including MTMC.[8] An EDI VAN provides many services to its subscribers including the following:

- *EDI mailbox.* This service allows you to place EDI documents (such as Transaction Set 858) in your trading partner's mailbox. Those trading partners will subsequently access their mailbox and retrieve the stored

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[6]A number of commercial vendors have developed EDI translation software packages. See LMI Report PL205RD1, *A Guide to EDI Translation Software, 1992 Edition*, Harold L. Frohman.

[7]LMI Report PL205LN2, *Ordering EDI Value-Added Network Services from Sprint*, Harold L. Frohman and William R. Ledder, October 1992.

[8]At their option, Defense shipping activities can use the Defense Data Network (DDN) or their own communications network to exchange EDI information within DoD. However, because DDN does not provide EDI VAN services, DISA has granted a DDN exemption to Defense transportation activities, allowing them to use a third-party EDI VAN for all EDI communications.

information. In addition, when accessing the EDI VAN, you can also retrieve any documents sent by your trading partners (e.g., Transaction Set 997).

- *Protocol and speed conversion.* This service allows your computer to exchange information with other computers, even if they are incompatible or have different line speeds.

- *Recordkeeping.* The EDI VAN can provide a report indicating the transaction sets you sent and received. That report typically indicates the trading partner name, date, time, document type, and transaction set.

When selecting your EDI translation software, it is important that the software be able to access the EDI VAN used by Defense transportation.

YOUR APPLICATION SYSTEM

You may need to modify your application system(s) in order to electronically exchange transportation information with your trading partners. That need is principally driven by whether your current system can satisfy the data requirements described in *Electronic Operating Instructions for Defense Shipping Activities*.

A SUMMARY OF ACTIONS YOU NEED TO TAKE TO GET STARTED

At this point, you most likely have computed your EDI investment and operating costs, determined your net benefits, and developed an implementation plan. You should have already budgeted for those expenses.

Table 2 provides "A Checklist for Commencing EDI Operations" for your use. Although not in any detail, it identifies the major tasks in a sequence in which you should accomplish them.

TABLE 2

A CHECKLIST FOR COMMENCING EDI OPERATIONS

Action	Status	
	Initiated	Completed
Read *Electronic Operating Instructions for Defense Shipping Activities*		
Begin training personnel in use of EDI		
Identify or acquire hardware for EDI		
Contact commercial carrier trading partners		
Order EDI VAN services from Sprint		
Acquire EDI translation software of choice		
Train personnel in the use of translation software		
Ensure your application program meets all DoD EDI data requirements		

GLOSSARY

LIST OF ACRONYMS

ANSI	=	American National Standards Institute
ASC	=	Accredited Standards Committee
ASCII	=	American Standard Code for Information Interchange
CFM	=	CONUS Freight Management
CFR	=	Code of Federal Regulations
DFAS-IN	=	Defense Finance and Accounting Service – Indianapolis Center
DISA	=	Data Interchange Standards Association
DoD	=	Department of Defense
DTMR	=	Defense Transportation Management Regulation
DTRS	=	Defense Transportation Payment System
EDI	=	electronic data interchange
GBL	=	Government bill of lading
LMI	=	Logistics Management Institute
MTIM-CF	=	Deputy Chief of Staff for Information Management – CONUS Freight
MTMC	=	Military Traffic Management Command
VAN	=	Value-added network

LIST OF TERMS

Accredited Standards Committee (ASC) X12. An American National Standards Institute (ANSI) committee formed in 1979 to develop uniform standards for electronically interchanging business transactions between and among industries. Most of the committee's work is accomplished by a series of subcommittees and task groups that develop new standards and maintain those already in existence.

American National Standards Institute (ANSI). A private, nonprofit coordinator of, and clearinghouse for, national and international standards.

Application System Interface. Software that either extracts data from a trading partner's data base and creates a flat file or that processes a flat file and incorporates the information into a trading partner's data base.

ASC X12 Standard. A standard for cross-industry electronic interchange of business transactions. Also referred to as a "transaction set."

Communications Software. A software program that controls and arranges for the transmission or reception of electronic data.

Convention. The unique practice, interpretation, or application of an ASC X12 standard/transaction set as agreed to by two or more trading partners.

Data Element. The smallest unit of information in any standard and thereby the smallest unit of information in a business transaction. Each data element is identified by a reference number. Data elements are defined in the ANSI X12.3 Data Element Dictionary. The dictionary specifies the name, description, type, and minimum and maximum lengths of each data element.

Data Segment. An intermediate unit of information in a transaction set. A segment consists of a predetermined segment identifier, one or more logically related data elements in a defined sequence, and a segment terminator. Segments are defined in the ANSI X12.22 Segment Dictionary, which lists each segment's title and provides the purpose, identifier, and the data elements contained in the segment (in their specified order).

Data Interchange Standards Association (DISA). A not-for-profit organization that functions as the secretariat for the ASC X12 to ANSI. Its principal activities include communicating with ANSI and the public on behalf of the Committee;

managing the standards data base; publishing, planning, and managing ASC X12 meetings and the annual EDI Conference and Exhibit; preparing, distributing, receiving, and tabulating ballots; and handling membership and administrative matters.

EDI Value-Added Network (VAN). A service that transmits, receives, and stores EDI messages for electronic trading partners and provides a wide variety of other EDI-related functions.

Electronic Data Interchange (EDI). The computer-to-computer exchange of data from common business documents using standard data formats.

Electronic Signature. A code or symbol that is the electronic equivalent of a written signature.

Flat File. A specially formatted American Standard Code for Information Interchange (ASCII) file containing data that allows information to be exchanged between a trading partner's data base and EDI translation software. To generate an EDI transaction set, information is extracted from a trading partner's data base, formatted into a flat file, and subsequently translated into an EDI transaction set. Conversely, when receiving an EDI transaction set, the EDI translation software reformats the data into a flat file that can be processed by a trading partner's application interface program for incorporation into the trading partner's data base.

Functional Acknowledgment. A message from the receiver of an EDI transmission to the sender indicating that a transmitted document was received and interpreted.

Implementation Convention. See Convention.

Instructions. Detailed procedures and guidelines with which freight carriers must comply when electronically exchanging rate, shipment, and invoice information with their DoD EDI trading partners. The Military Traffic Management Command (MTMC) is responsible for the publication and distribution of instructions on filing rates and exchanging shipment information electronically. The DoD finance centers are responsible for providing instructions on their billing procedures.

Mailbox. An EDI VAN service that holds a customer's transactions until they are retrieved.

Mapping. A process of diagramming what EDI data are to be exchanged, how the data are to be used, and what internal application systems require the data.

Operating Concept. A diagram that details, at a high level, EDI information flows and a system architecture.

Release. A title given to annual updates of ANSI X12 standards by DISA.

Standard (ASC X12 Standard). Any of the ANSI X12 approved standards that permit the cross-industry electronic exchange of business transactions.

Standard (Message Standard). The rules by which business data, traditionally found in paper documents, are translated into a computer-readable format for electronic transmission to a trading partner's computer for processing.

Syntax. The rules that describe how transactions are built out of groups of data elements and segments.

Trading Partners. The participants in an EDI relationship. Freight trading partners include Defense shipping activities, MTMC, DoD finance centers, and participating freight carriers.

Transaction Set. The EDI equivalent of a paper business document. A transaction set consists of a specific group of segments that represent a business transaction (e.g., a purchase order or an invoice). Each transaction set comprises a transaction set header, one or more data segments in a specified order, and a transaction set trailer segment. One or more transaction sets apply to each ASC X12 EDI standard.

Transaction Set Mapping Utility. Software that permits a receiving EDI trading partner to design a unique flat-file format. That software utility is generally integrated with translation software.

Translation Software. Software that translates data extracted from a trading partner's data base to a standard EDI format that is interchangeable with other trading partners. Conversely, the software translates EDI-formatted data to a flat-file format that is recognized by the receiving trading partner's application system.

Version. A title given to approved ASC X12 standards updates every 3 years.

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EDI Trading Partner Agreement for Defense Transportation: Freight. Bridges, W. Michael, Harold L. Frohman, William R. Ledder, and Theresa Yee. LMI Report PL205LN4. March 1993.

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The Federal Property Management Regulations. Title 41 Code of Federal Regulations (CFR). Part 101-41, "Transportation Documentation and Audit."

APPENDIX

POINTS OF CONTACT

A. Military Traffic Management Command (MTMC)

Office of the Deputy Chief of Staff for Information Management
HQ, MTMC
ATTN: MTIM-CF (Dwight Ford or Tom Hicks)
5611 Columbia Pike
Falls Church, VA 22041-5050
Telephone: 703-756-7597
FAX: 703-756-1002

Contact MTMC if you need

- Copies of DoD EDI Conventions (213, 214, 858, 994, 997)

- Copies of *Electronic Operating Instructions for Defense Shipping Activities* or assistance with sending shipment information electronically

- Information regarding the *EDI Trading Partner Agreement for Defense Transportation: Freight*

- Copies of *How to Submit EDI Tenders to the DoD for Transportation of Freight in the Continental United States*, LMI Report MT901TR2, which describes how carriers can submit tenders electronically to MTMC

- Information regarding the *Defense Traffic Management Regulation*

- Answers to functional freight shipment questions

- Answers to Defense transportation EDI technical questions.

B. Defense Finance and Accounting Service — Indianapolis Center

Defense Finance and Accounting Service — Indianapolis Center
Attn: Transportation Operations Directorate, Systems Management Office
          (DFAS-IN-TA)
Indianapolis, IN 46249-0606
Telephone: 317-542-2471
FAX:. 317-543-7829

Contact DFAS-IN if you need copies of the *Freight Carrier Billing Instructions for the Defense Finance and Accounting Service — Indianapolis Center.*

C.   Data Interchange Standards Association (DISA)

Data Interchange Standards Association, Inc.
ASC X12 Secretariat
1800 Diagonal Road, Suite 355
Alexandria, VA 22314-2852
Telephone: 703-548-7005
FAX: 703-548-5738

Contact DISA at the above address if you have any general or technical questions concerning EDI standards.

EDI Support Services, Inc.
P.O. Box 203
Chardon, OH 44024-0203
Telephone: 800-334-4X12
FAX: 216-286-6817

Contact DISA at this address if you want to place an order for EDI standards.

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13. ABSTRACT *(Maximum 200 words)*

The Department of Defense (DoD) is encouraging the application of electronic data interchange (EDI) techniques to replace paper documents in its transportation processes. In keeping with that emphasis, the Military Traffic Management Command (MTMC) and DoD finance centers are anxious to establish an EDI relationship with freight carriers. This information package is designed to assist Defense freight shipping activities in transitioning from the traditional paper operating environment to an EDI environment.

This report defines EDI in Defense transportation and describes the freight EDI operating concept along with the EDI standards and DoD conventions intended for use by Defense shipping activities, MTMC, DoD finance centers, and freight carriers. The necessary components to implement an EDI program, such as computer hardware, EDI software, and the EDI value-added network, are also described providing Defense freight shipping activities general guidance on how to initiate and conduct EDI freight business with MTMC and the commercial freight carrier industry.

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